VIT®

Vellore Institute of Technology

(Deemed to be University under section 3 of UGC Act, 1956)

in association with

Tamil Virtual Academy, Dept. of Information Technology, Govt. of Tamil Nadu.

HACKATHON ON TAMIL COMPUTING

December 19,2022

Organized by

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING

VELLORE

Code & Title : TVIT0701 - QR code based online shopping website implementing Unicode based sorting.

Thrust Area : Tamil Sorting

Campus Name : Vellore

Reg.Nos & Names : 20BCE0150 – Vidyarth GS
20BCE0118 – Nishanth VM
20BCE0153 – Sivanesh K
20BCE2400 – Kathiresan PL

Mentor Name : Prof. Lydia Jane

கணித்தமிழ்
வளர்ப்போம்..!
காலத்தை
வெல்வோம்..!!

Idea/Approach Details

Describe your idea/Solution/Prototype here:

Cause

When we visit the local popular stores, we usually need to stand in queues. Also we cant imagine standing in queues for so long just to know that it’s not available anymore. Also this problem affects the sales of the shop which in turn affects the shopkeeper. Thus we came up with a solution, பூம்புகார், which will cater all the problems.

Our Solution

Our first aim is to prevent queues in shop. So we came up with an app, where user first scans the QR code of the particular shop (usually attached in front of the shops) after which user can access the products catalog of the shop. A detailed listing of product name, price and quantity(relative to the queue) is displayed and the user can request the products he/she wants.

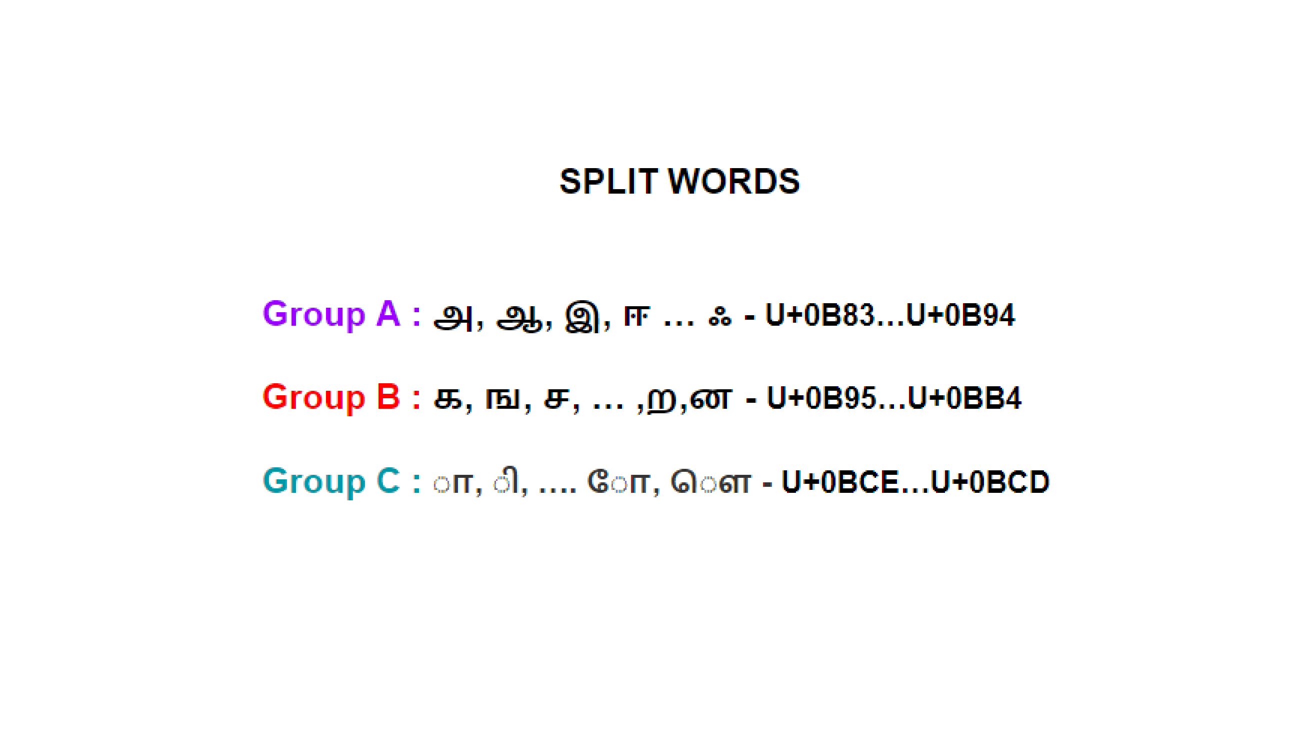
Idea/Approach Details

Now the shopkeeper can view the request made by the customers in the shopkeeper dashboard. This dashboard allows the shopkeeper to manage all the shops he/she owns, add, edit or delete shop, and in scope of a shop, the shopkeeper can view the inventory, add, edit or delete items and so on. The shopkeeper can view requests made by each customer and notify them when the product is ready to be delivered (email is sent to the customer to notify them).

After receiving the mail, the customer can come and collect the product from the shop. Also, the customer can view his/her order history in the dashboard whereas the shopkeeper can view the order history for all the shops in his/her dashboard.

Idea/Approach Details

Splitting words:



SPLIT WORDS

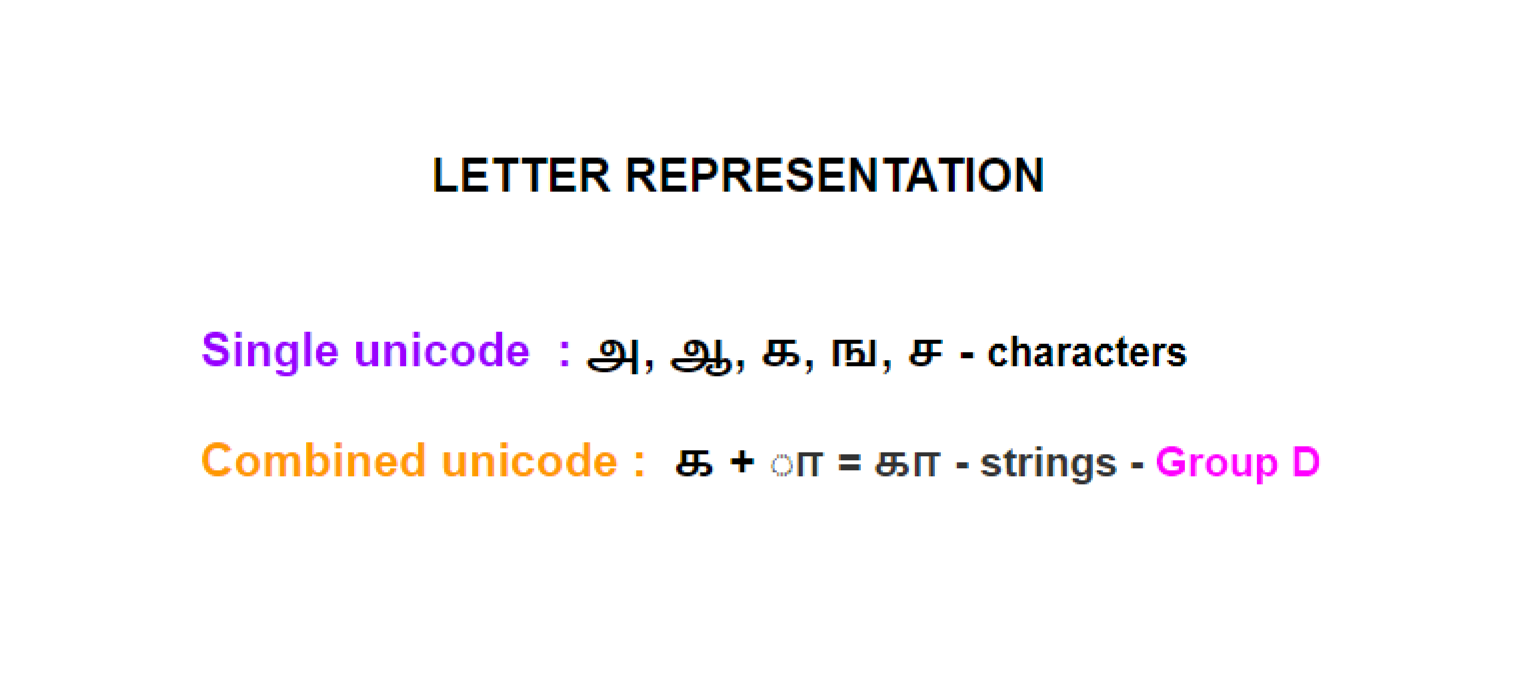
Group A : அ, ஆ, இ, ஈ … ஃ - U+0B83…U+0B94

Group B : க, ங, ச, … ,ற,ன - U+0B95…U+0BB4

Group C : ◌ா, ◌ி, …. ◌ோ, ◌ௌ - U+0BCE…U+0BCD

Idea/Approach Details

Letter representation:



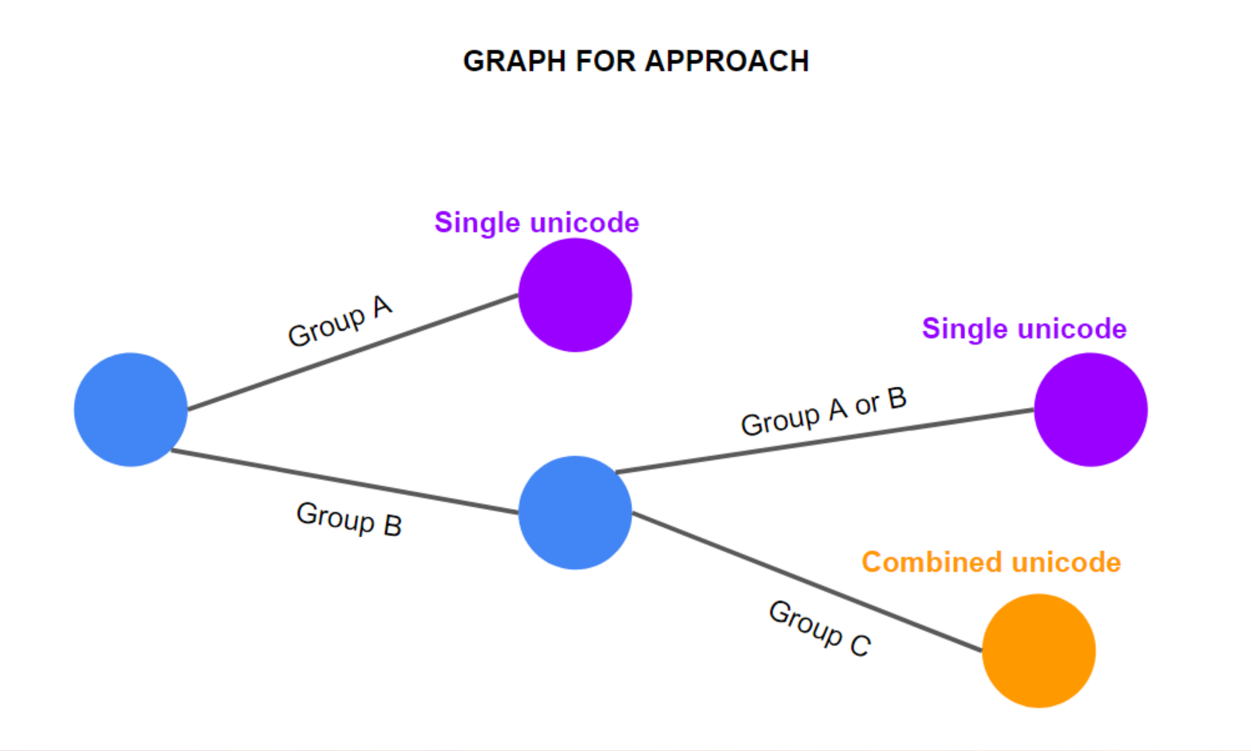
LETTER REPRESENTATION

Single unicode : அ, ஆ, க, ங, ச - characters

Combined unicode : க + ◌ா = கா - strings - Group D

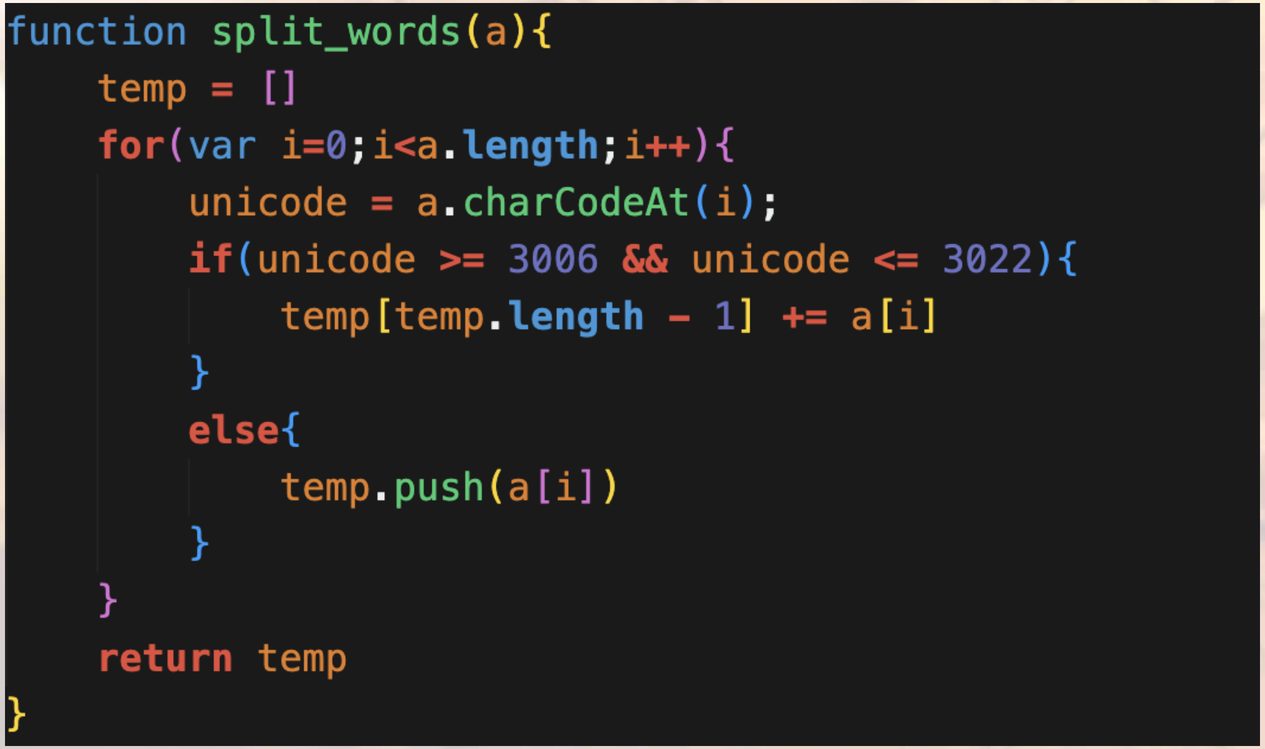
Idea/Approach Details

Graph approach:



Idea/Approach Details

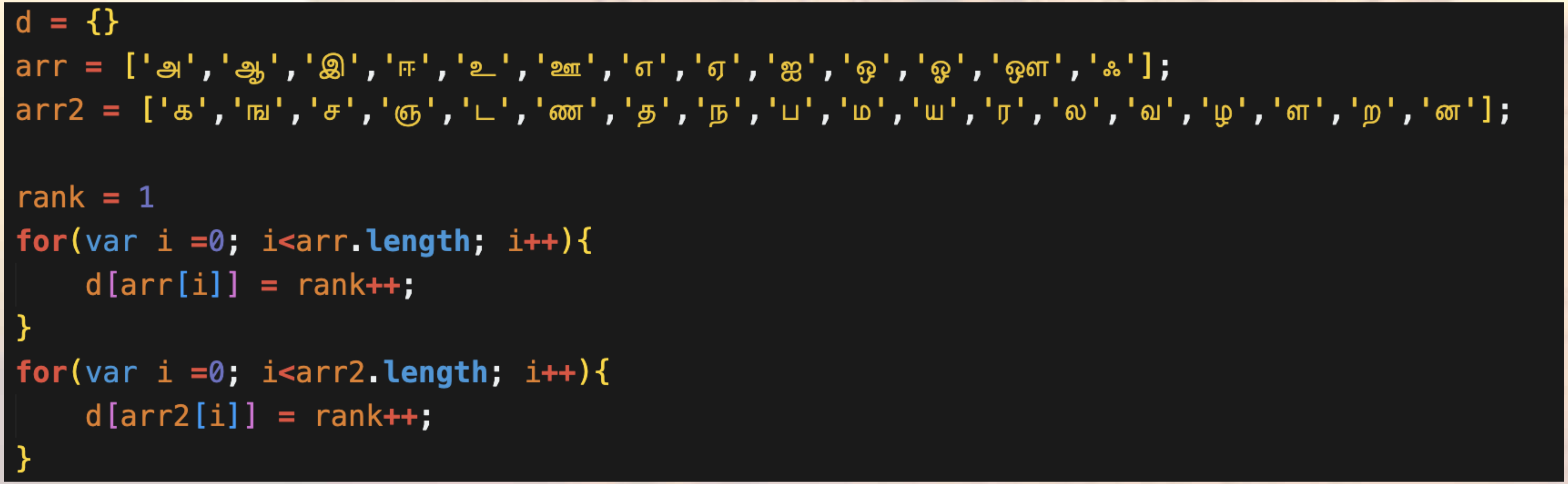
Splitting:



```
function split_words(a){
    temp = []
    for(var i=0;i<a.length;i++){
        unicode = a.charCodeAt(i);
        if(unicode >= 3006 && unicode <= 3022){
            temp[temp.length - 1] += a[i]
        }
        else{
            temp.push(a[i])
        }
    }
    return temp
}
```

Idea/Approach Details

Priority hashmaps:

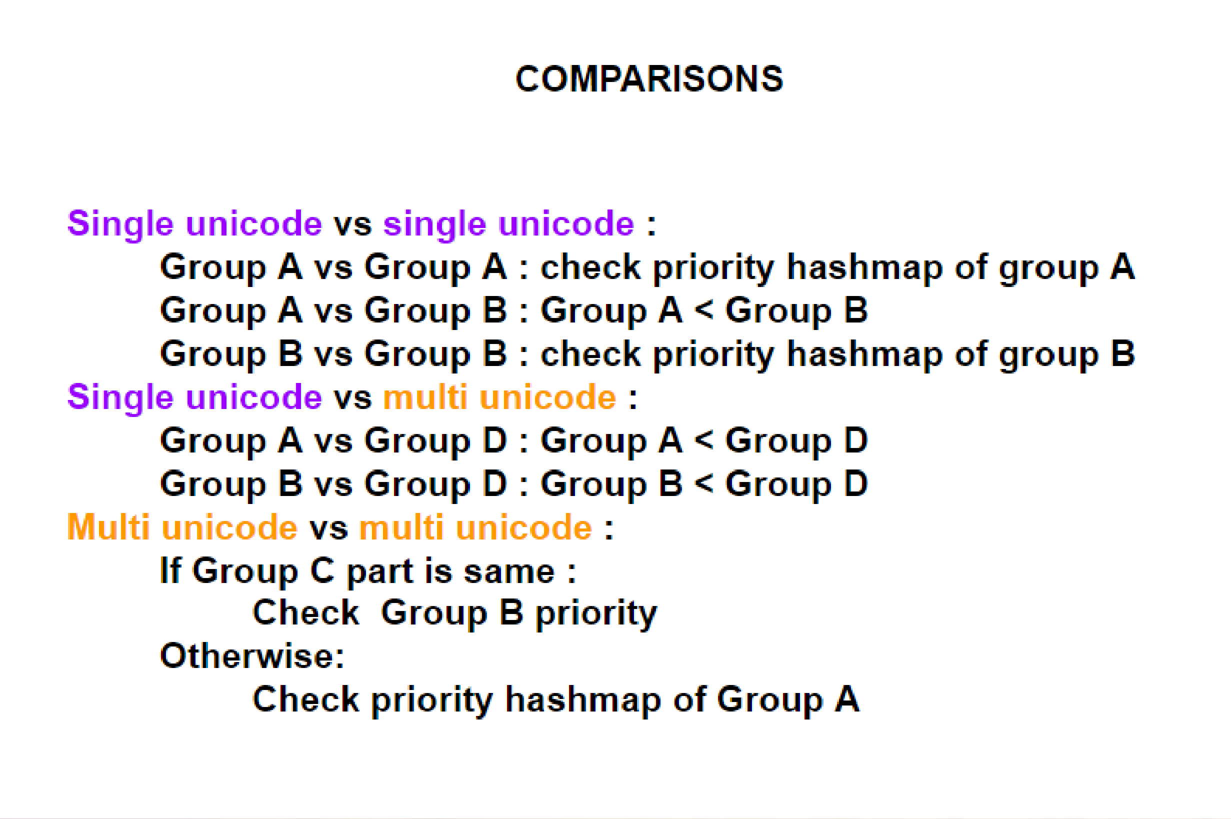


```
d = {}
arr = ['அ','ஆ','இ','ஈ','உ','ஊ','எ','ஏ','ஐ','ஒ','ஓ','ஔ','ஃ'];
arr2 = ['க','ங','ச','ஞ','ட','ண','த','ந','ப','ம','ய','ர','ல','வ','ழ','ள','ற','ன'];

rank = 1
for(var i =0; i<arr.length; i++){
    d[arr[i]] = rank++;
}
for(var i =0; i<arr2.length; i++){
    d[arr2[i]] = rank++;
}
```

Idea/Approach Details

Comparison algorithm:

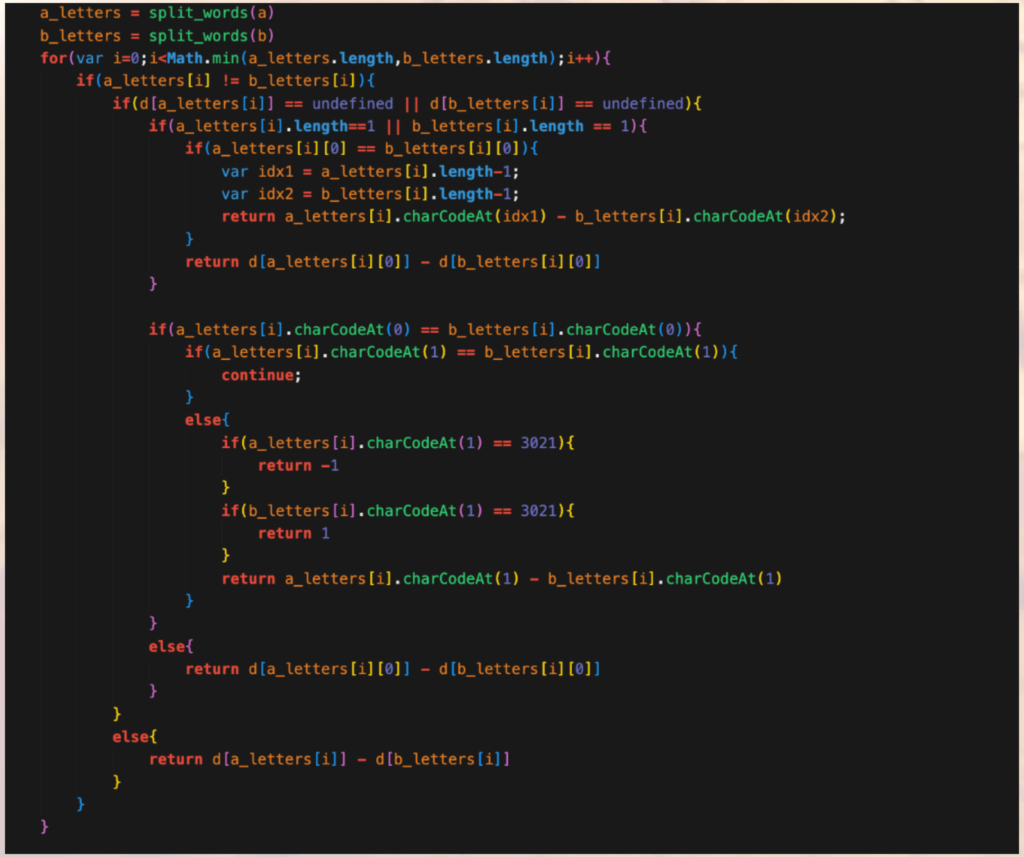


COMPARISONS

```
Single unicode vs single unicode :
    Group A vs Group A : check priority hashmap of group A
    Group A vs Group B : Group A < Group B
    Group B vs Group B : check priority hashmap of group B
Single unicode vs multi unicode :
    Group A vs Group D : Group A < Group D
    Group B vs Group D : Group B < Group D
Multi unicode vs multi unicode :
    If Group C part is same :
        Check  Group B priority
    Otherwise:
        Check priority hashmap of Group A
```

Idea/Approach Details

Comparison code:



```
a_letters = split_words(a)
b_letters = split_words(b)
for(var i=0;i<Math.min(a_letters.length,b_letters.length);i++){
    if(a_letters[i] != b_letters[i]){
        if(d[a_letters[i]] == undefined || d[b_letters[i]] == undefined){
            if(a_letters[i].length==1 || b_letters[i].length == 1){
                if(a_letters[i][0] == b_letters[i][0]){
                    var idx1 = a_letters[i].length-1;
                    var idx2 = b_letters[i].length-1;
                    return a_letters[i].charCodeAt(idx1) - b_letters[i].charCodeAt(idx2);
                }
                return d[a_letters[i][0]] - d[b_letters[i][0]]
            }

            if(a_letters[i].charCodeAt(0) == b_letters[i].charCodeAt(0)){
                if(a_letters[i].charCodeAt(1) == b_letters[i].charCodeAt(1)){
                    continue;
                }
                else{
                    if(a_letters[i].charCodeAt(1) == 3021){
                        return -1
                    }
                    if(b_letters[i].charCodeAt(1) == 3021){
                        return 1
                    }
                    return a_letters[i].charCodeAt(1) - b_letters[i].charCodeAt(1)
                }
            }
            else{
                return d[a_letters[i][0]] - d[b_letters[i][0]]
            }
        }
        else{
            return d[a_letters[i]] - d[b_letters[i]]
        }
    }
}
```

Idea/Approach Details

Features

No queues anymore

When we visit the local popular stores, we usually need to stand in queues. But with ShopQ we can order items online skipping queues and saving time.

Availability

Imagine standing in queues for so long just to know that it’s not available anymore. But when you order from ShopQ you exactly know what is available and how much is available eliminating the uncertainty of availability

E-mail Alerts

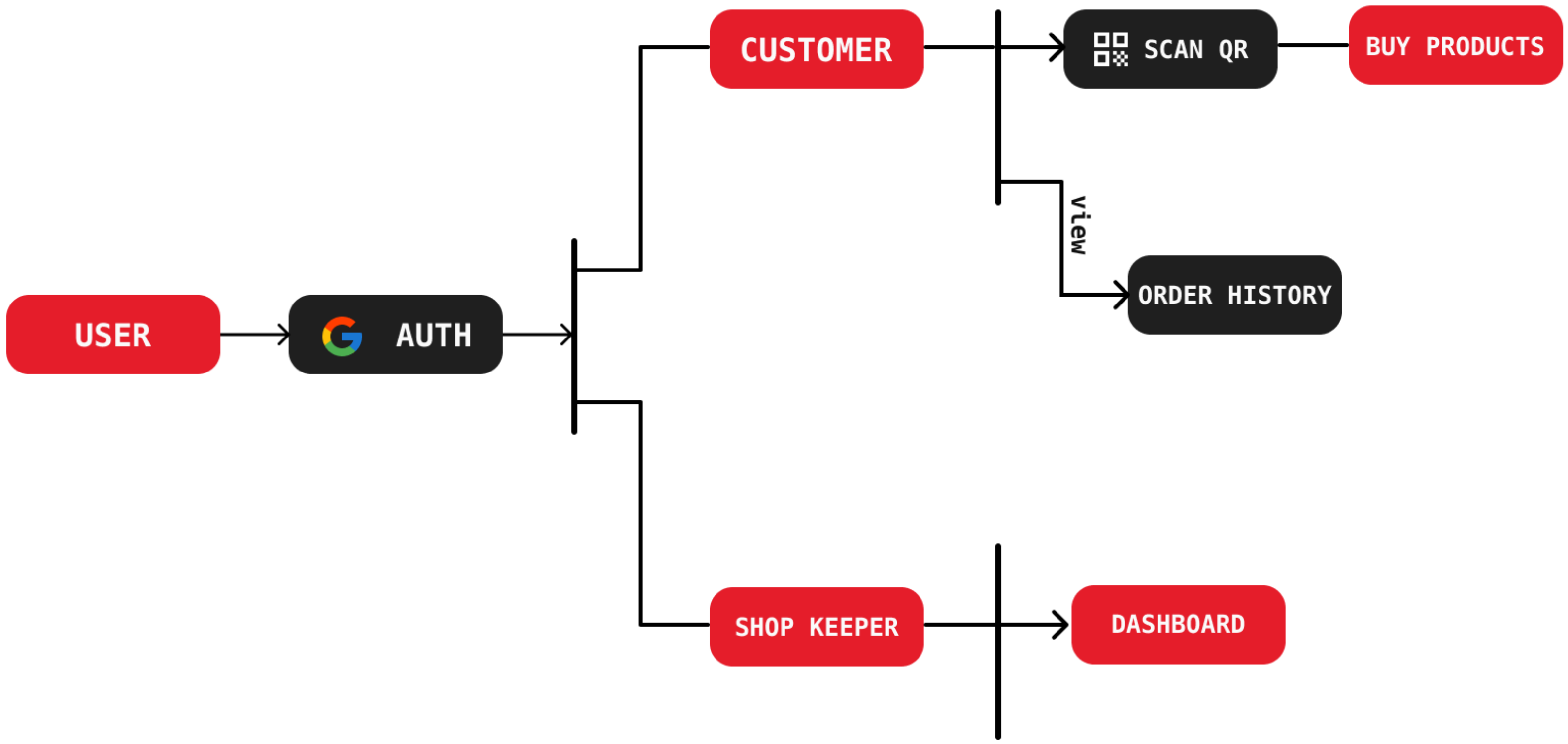
Once the order is ready for pick-up, an Email- alert will be sent to the customer.

Pick Up

Once the E-mail alert is received, you can visit the shop and pick-up the order

Workflow

OVERALL WORKFLOW



USER

AUTH

CUSTOMER

SCAN QR

BUY PRODUCTS

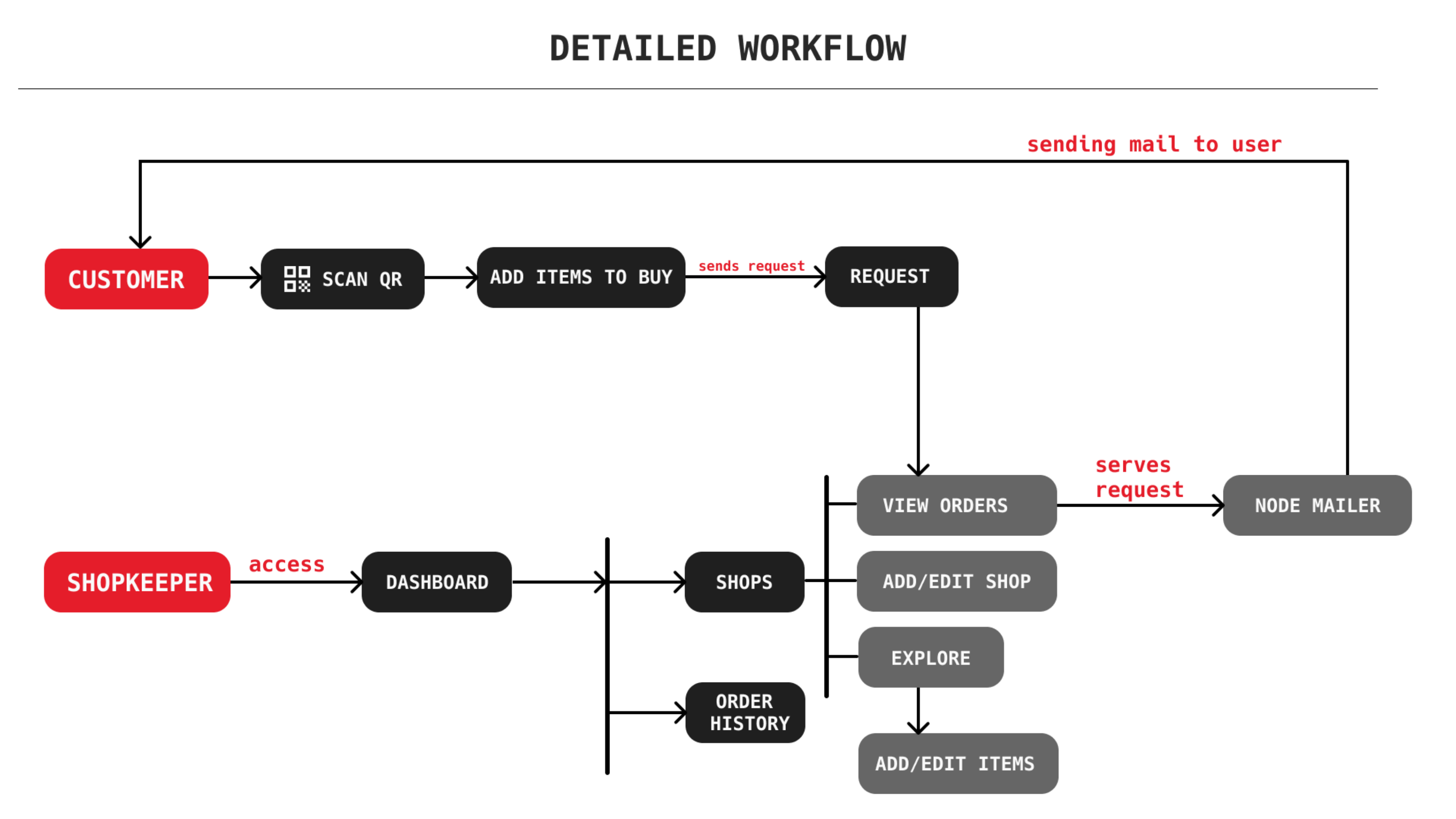
view

ORDER HISTORY

SHOP KEEPER

DASHBOARD

Workflow


DETAILED WORKFLOW
sending mail to user
CUSTOMER
SCAN QR
ADD ITEMS TO BUY
sends request
REQUEST
serves
request
VIEW ORDERS
NODE MAILER
SHOPKEEPER
access
DASHBOARD
SHOPS
ADD/EDIT SHOP
EXPLORE
ORDER
HISTORY
ADD/EDIT ITEMS

Describe your Technology stack here:

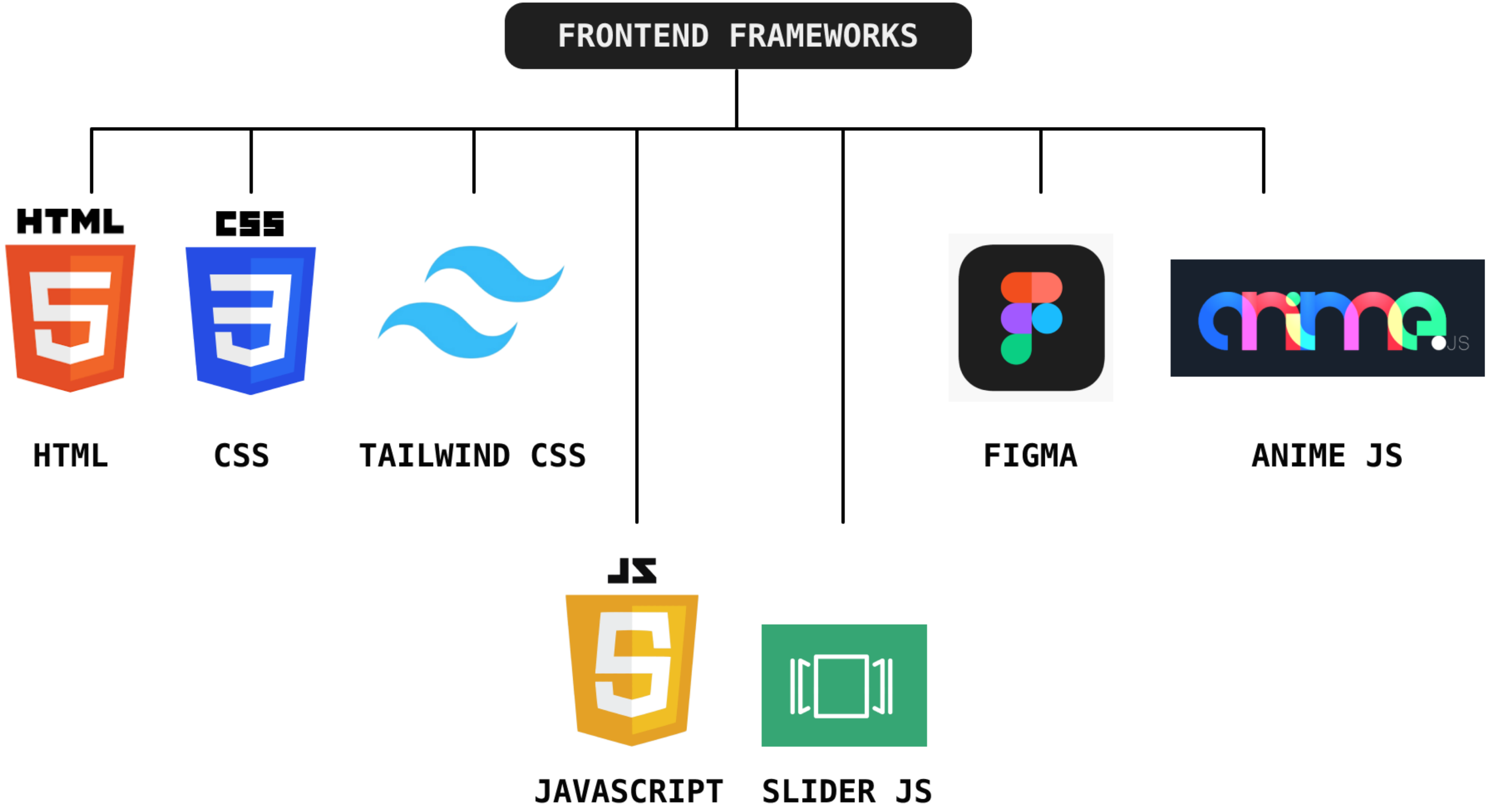
- **Frontend**
  - **HTML**
  - **CSS**
  - **JavaScript**
  - **Tailwind CSS**
  - **Slider JS**
  - **Figma**
  - **Anime JS**

Describe your Technology stack here:

- **Backend**
  - **Node JS**
  - **Passport JS**
  - **Multer**
  - **Express JS**
  - **Mongo DB**

Describe your Technology stack here:

- **Deployment**
  - **AWS**
- **Templating**
  - **Handlebars**



FRONTEND FRAMEWORKS

HTML

CSS

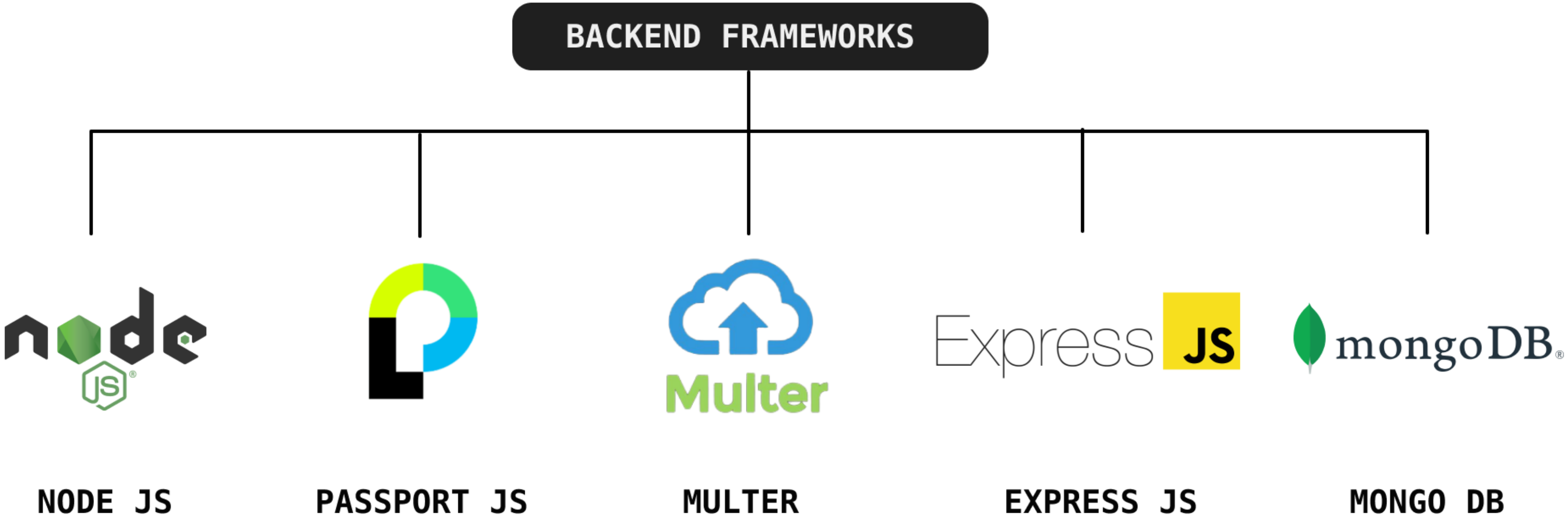
TAILWIND CSS

FIGMA

ANIME JS

JAVASCRIPT

SLIDER JS



BACKEND FRAMEWORKS

NODE JS

PASSPORT JS

MULTER

EXPRESS JS

MONGO DB

TEMPLATE LANGUAGE

handlebars

HANDLEBAR

BACKEND FRAMEWORKS

aws

AMAZON WEB SERVICES

Describe your Use Cases here / Input and Output

- **Use case 1: Authentication**

Users can sign in only using valid **google accounts** which makes the app more secure.

- **Use case 2: Functional styling**

Users Products with zero stock will have no incremental or decremental add to cart buttons with the image being greyed out which basically indicates that the product is out of stock.

Describe your Use Cases here / Input and Output

- **Use case 3: Tamil Sorting**

The product list and other listings in the page can sorted by their Tamil names.

Eg. Products catalog in products page

தக்காளி சிப்

ஓரியோ

கடலை வெண்ணெய்

மிளகாய் தூள் etc..

Describe your Use Cases here / Input and Output

As a result of our sorting algorithm, the products will be listed as,

ஓரியோ

கடலை வெண்ணெய்

தக்காளி சிப்

மிளகாய் தூள் etc..

Conclusion and Feature works

- Thus we can reduce the queue and waiting time for each customers and it will be easy for the shopkeepers to manage shop.

- **Future works**
- Upload image of the item
- Send mobile notification
- Deploy in AWS
- Suggestions given by judges.

Team Member Details

Team Leader Name and RegNo: Vidyarth GS ,20BCE0150, 9025157138 .

Team Member 1 Name and RegNo : Nishanth VM, 20BCE0118.

Team Member 2 Name and RegNo : Sivanesh K, 20BCE0153.

Team Member 3 Name and RegNo : Kathiresan PL, 20BCE2400.

Q&A
THANK YOU !